



**The Weissman Center for Leadership and the Liberal Arts  
The Speaking, Arguing, and Writing Program  
122 Porter Hall**

## **Writing Science Lab Reports**

Be sure to confirm your data with the lab instructor or your lab partner before you begin to write your report. Many scientists begin with writing the Results and Discussion sections. This helps them later write the Introduction, Materials & Methods, and Abstract. Often, the title is created last. Once you have confirmed the data and written a draft of the different sections, present your report in the following order using these guidelines:

### **A. Title**

Be direct and descriptive. State main topic studied (e.g., experimental organism, type of mineral or chemical system).

### **B. Abstract**

The purpose of the abstract is to **summarize** in one-to-two paragraphs the information presented in the report. Try to address the following questions in your abstract; they will often determine whether someone reads the paper:

- What questions did you address (Introduction)?
- Why do you care about these questions (Introduction)?
- How did you address these questions (Methods)?
- What were the answers to these questions (Results)?
- What are the implications of these answers? Are the data consistent with the hypothesis (Discussion)?
- Why do we care about these answers (Discussion)?

### **C. Introduction**

The introduction describes the **purpose** of the experiment, provides **background** information, sets up the experiment, and cites the **hypothesis** of the experiment. Here are some tips:

- Summarize findings from previous experiments with appropriate references, but avoid direct quotations.
- Catch the reader's attention with a surprising fact or a pressing issue.
- Refer to an organism by using the entire Latin name the first time you refer to it, then abbreviate the first half of the name subsequent times:  
1<sup>st</sup> mention: *Strongylocentrus purpuratus*  
2<sup>nd</sup> mention: *S. purpuratus*
- State your hypothesis (what is predicted to happen). Be sure to distinguish your hypothesis from your results.
- Use appropriate verb tenses; check with your professor for specifics.

#### D. Materials and Methods

This section is used to describe **how the experiment was conducted** so that others can replicate it. Keep these points in mind:

- Use past tense and passive voice.
- Aim for reproducible methods.
- Check with your instructor regarding the amount of detail you need to include.
- Be sure to indicate any deviations made from the original lab procedure.
- If the method was obtained from a lab manual or from a journal article, cite appropriately using CSE citations (unless otherwise specified).

#### E. Results (*refer to back of handout for labeled samples*)

This section is used to **present findings** in a clear and concise manner; it is not a place to explain or interpret data. In other words:

- Incorporate your observations (in paragraph form) into the results section.
- Summarize data, point out trends, and run statistical tests.
- Use graphs, tables, and figures to illustrate. Label them clearly, providing title and figure legends in the proper format. You must “call out” the figures and tables in the text. For example, “...in the graph (Figure 1)” or “In Table 1...”
- Do not explain data in the results section; save your explanations for the discussion.
- Illustrate trends rather than simply listing the data:  
*Effective:* “The temperature dropped steadily throughout the experiment.”  
*Ineffective:* “First the temperature was 6 degrees C, then 5 degrees C, then 4 degrees C, and then 2 degrees C.”

#### F. Discussion

This is the section used to **interpret data**. This section should be detailed but as concise as possible. The use of carefully chosen adjectives is encouraged. Consider the following:

- Do the results support the hypothesis? Why or why not?
- How do the results compare to previous work? (Refer back to information cited in the introduction.)
- What went wrong? What could have been done better? What are possible sources of error?
- What future experiments should be conducted?
- Have you presented the data to which you are referring in the results section?

#### G. Citations

Unless otherwise specified, use the citation rules set forth by the **Council on Science Editing (CSE)**. This style is widely known as **CBE** style, but has recently changed names to CSE style. Information about specific citation situations can be found by going to [www.sourceaid.com](http://www.sourceaid.com) and choosing the “Council of Science Editors” style.

The following are a few examples of common in-text citations used in scientific writing:

- In-text citations, usually paraphrased, are cited with the author's name and date of publication in parentheses. ...*the results of the study suggest it is a poor solvent (Smith 2001)*.
- If the author's name is part of the sentence, only the date will be in parentheses. ...*the results of Smith's (2001) experiment suggest it is a poor solvent*.
- If there are two authors, list both authors with the senior (first listed) author first. ...*the results of the study suggest it is a poor solvent (Smith and Peru 2001)*.
- If there are more than two authors, list the senior author and the words "and others" or "et al." ...*the results of the study suggest it is a poor solvent (Smith and others 2001)*.

Sources:

McMillan, V.E. *Writing Papers in the Biological Sciences*. 3<sup>rd</sup> ed. Boston: Bedford/St. Martins, 2001.

"Writing the Scientific-Format Paper." Colorado State University Writing Guides. 2006.  
<<http://writing.colostate.edu/guides/processes/science>>

<http://www.mtholyoke.edu/go/saw>

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